

**Notice of Allowability**

Application No.

10/572,571

Examiner

Mark Ruthkosky

Applicant(s)

ABE ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/1/2006.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 9/26/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**MARK RUTHKOSKY**  
**PRIMARY EXAMINER**

*Mark Ruthkosky*  
4.2.07

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement filed 9/26/2006 has been placed in the application file, and the information referred to therein has been considered as to the merits.

### ***Drawings***

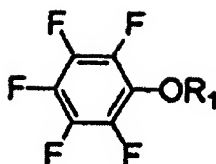
No drawings have been filed in the application.

### ***Allowable Subject Matter***

Claims 1-10 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a non-aqueous electrolytic solution comprising an electrolyte salt in a non-aqueous solvent, wherein the non-aqueous electrolytic solution further contains a pentafluorophenyloxy compound represented by the formula (I), and vinylene carbonate and/or 1,3-propanesultone



The pentafluorophenyl molecule has an oxygen atom attached directly to the phenyl ring and the oxygen atom is further attached to a group R<sub>1</sub> which is a substituent selected from the group consisting of an alkylcarbonyl group having 2 to 12 carbon atoms, an alkoxy carbonyl group having 2 to 12 carbon atoms, an aryloxy carbonyl group having 7 to 18 carbon atoms, and an alkanesulfonyl group having 1 to 12 carbon atoms, and at least one hydrogen atom of the substituent can be substituted with a halogen atom or an aryl group having 6 to 18 carbon atoms.

The prior art does not teach a non-aqueous electrolytic solution comprising an electrolyte salt in a non-aqueous solvent, wherein the solution further contains the claimed pentafluorophenyloxy compound, and vinylene carbonate and/or 1,3-propanesultone. The most pertinent prior art is noted.

Yasugi (JP 2000-323169) teaches a lithium secondary battery with an electrolyte including a compound that may include a pentafluorophenyl molecule, however the pentafluorophenyl molecule is attached to a carbon atom of a COOR group. The reference does not teach vinylene carbonate and/or 1,3-propanesultone.

Hamamoto et al. (US 6,503,662) teaches a lithium secondary battery with an electrolyte including a compound that may include a pentaalkylphenyl molecule with a butyl group attached. The reference does teach vinylene carbonate as a solvent.

Akinori et al (JP 2000-156243) teaches a lithium secondary battery with an electrolyte including a compound that may include a tetrafluorophenyl molecule among a variety of

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substituted phenyl molecules, however no pentafluorophenyl molecule is taught. The reference does not teach vinylene carbonate and/or 1,3-propanesultone.

As the prior art does not teach a non-aqueous electrolytic solution comprising an electrolyte salt in a non-aqueous solvent, the claimed pentafluorophenyloxy compound, and vinylene carbonate and/or 1,3-propanesultone, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Examiner Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR


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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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4.2.07